INTRODUCTION
A non-invasive brain-computer interface (BCI) records brain activity from the scalp and uses the signals to convey intent.

Three users have been provided with portable P300 BCI systems that they use to perform a variety of tasks on a daily basis. Caregivers have been trained to apply electrode caps and start the systems. Each day data are transferred to the lab via an ftp protocol and analyzed. Classification coefficients are updated remotely on an as needed basis. Users are presented with a matrix of items, each emulates a keyboard command. The users operate the system by attending to a desired matrix item while all items flash rapidly. The attended item produces a P300 response and the unattended items do not. The system operates by detecting which item elicited the largest P300 on a given series of flashes. The system selects that matrix item, which emulates a keyboard command.

EXAMPLE OF FREE SPELLING DISPLAY

User A
- 48 y/o man
- Intubated
- Totally paralyzed except for eye movements
- System installed February 2006
- Immediately stopped using eye-gaze system

User B
- 61 y/o man
- Intubated
- Communicates via head/mouth/finger movements (no speech)
- System installed September 2006

User C
- 59 y/o woman
- Intubated
- Totally paralyzed except for eye movements
- System installed September 2006